Society of Arts, and the International Association of Navigation congresses. He was president of the mechanical section of the British Association meeting of 1895, and a number of distinctions were conferred upon him from time to time, including a commandership of the Imperial Franz-Josef Order of Austria-Hungary, in recognition of his services on an International Jury on Canal Lifts.

There is no novel or startling departure in theory or practice, no gigantic masterpiece of constructive skill, associated with Prof. Vernon-Harcourt's career, but his name will long be held in respectful remembrance by those who can understand and appreciate the solid and enduring character of his unobtrusive work. His investigations in 1886 in regard to the Seine estuary, and the patient care with which, from a number of artificial models, he deduced the probable effect of various systems of training works, commanded the attention and interest of the profession, such that his position as an expert authority on fluvio-maritime works henceforward became preeminent. In 1896 he made an inspection of the River Hooghli, and drew up for the Calcutta Port Commissioners a valuable report on the means of improving the navigable channel. Only last year he was consulted by the Mersey Docks and Harbour Board in regard to certain training works proposed for the estuary of the Mersey.

Prof. Vernon-Harcourt did not reach the allotted span of man, and the announcement of his death at the age of sixty-eight is received on all hands with unfeigned expressions of sorrow and regret.

NOTES.

THE celebration of the centenary of the Geological Society of London is to commence this morning with a reception of delegates by the president, Sir Archibald Geikie, K.C.B., F.R.S., at the Institution of Civil Engineers. The history of the society is traced in a review which appears elsewhere in this number, and we hope to give an account of the centennial celebrations in our next issue. The president will deliver an address this afternoon on the state of geology at the time when the Geological Society was founded, and a banquet will be held at the Hôtel Métropole this evening. To-morrow will be chiefly devoted to visits to museums, galleries, &c., concluding with an evening reception at the Natural History Museum. On Saturday, short excursions will be made to places of geological interest within easy reach of London; and on Monday the visitors will divide into two sections, one of which will go to Oxford, the other to Cambridge. At both universities there will be further hospitalities, and honorary degrees will be conferred upon a few of the guests.

THE fourteenth International Congress of Hygiene and Demography was opened at Berlin on Monday in the presence of the Crown Prince and representatives of the Diplomatic Corps, the Prussian Ministry, the Berlin Municipality, and other official bodies. The congress was formally welcomed in the name of the Emperor William by the Prussian Minister of the Interior, Herr von Bethmann-Hollweg.

THE Scottish Arctic Expedition under Dr. Bruce arrived at Tromsö on September 22, all well. Dr. Bruce's companion, Mr. H. Johansen, will stay at Spitsbergen for the winter, together with Mr. Lerner. The *Times* correspondent at Ottawa reports that Dr. Stefansson, of the Anglo-American Arctic Expedition, has arrived at Victoria. He left Captain Mikkelsen and the other members of the expedition well on Herschel Island in July.

A CONFERENCE for the purpose of discussing subjects connected with the work of museums and art galleries and kindred institutions will be held at the Royal Museum and Art Galleries, Salford, on Friday, October 18, and will be attended by members of the Museums Association and other persons interested in museum work.

THE Berlin correspondent of the *Globe* states that during the ensuing four months, that is, from now to January 15, the German Army authorities intend to carry out an important series of experiments in wireless telegraphy at Metz and Strassburg, and at the six leading fortresses of Königsberg, Thorn, Danzig, Posen, Cologne, and Mainz. One thousand reservists, who have served as military telegraphists, have been called up to work with the military telegraphists now serving with the Army.

SPEAKING at Liverpool on September 19, at the Liverpool Imperial Products Exhibition, Mr. Haldane, M.P., again took the opportunity of urging the importance of a scientific foundation for our Empire. He reminded his hearers that the secret of prosperity, the secret of winning the fruits of the earth, lies in mind, in knowledge, and in the direction applied to the energies which abound around us, and can be turned to the service of man. What is true of ordinary industry is true of the great enterprise of making the best of the possibilities of those vast tracts of the world which constitute the British Empire.

THE official results of the International Balloon Race of September 15 show that six balloons travelled more than 800 kilometres before descending. The following particulars are given, among others:—

Order	Name of Balloon	Cubic capacity, metres	Nationality	Hour of ascent	Hour of descent	Distance travelled, kilometres
				Sunday	Monday	
1	Pommern ...	2,200	Germany ...	17 48	22 30	935
2	Le Cognac	1,700	Switzerland ...	18 02	18 03	870
3	Zéphir ...	2,200	Great Britain	17 09	17 30	860
4	Britannia ...	2,200	Great Britain	17 43	18 06	840
5	Bamler ...	1,437	Germany ...	18 37	18 30	830
6	Milano ...	2,000	Italy	17 07	14 30	810

THE autumn meeting of the Iron and Steel Institute was opened at Vienna on Monday in the hall of the Austrian Society of Engineers and Architects. The Ministers of Commerce and Agriculture, with their Under-Secretaries of State and many prominent officials, as well as the general managers of the principal Austrian iron works, were present to welcome the institute. Sir Hugh Bell, the president, returned thanks for the cordial welcome extended to the members by the Austrian Government and the civic authorities. A selection of papers was then read and discussed. On Monday evening a special performance at the Imperial Opera House was arranged. On Tuesday the morning was devoted to the reading and discussion of papers, and the afternoon to a visit to the Imperial Palace at Schönbrunn. To-day, September 26, will begin the excursions to the works to be visited in (1) Bohemia; (2) Styria; and (3) Moravia and Silesia.

THE second Engineering and Machinery Exhibition at Olympia was opened on September 19 by Sir Alexander Kennedy, F.R.S. The body of the hall and part of the annex are filled with the stands of engineering and other firms closely connected with engineering, but the chief feature of the exhibition is the fine collection of machine tools. The British machine-tool manufacturers are well represented, and hold their own with the American and

Continental firms, which could not have been said of the previous exhibition. The importance and adaptability of electric driving is well illustrated by the machine-tool section, and individual operation is greatly in evidence. This is especially the case in one exhibit, as the whole of the machines are individually driven, and the absence of complicated belting as compared with neighbouring exhibits adds greatly to the attractiveness of the machines. Modern electric-tool equipment of every description is well represented, and the heavier machines are also provided in most cases with electric motors, such as plate-bending, girder notching, shearing machines, as well as pumps, winches, &c. Motor starters, iron-clad switches, and electric fittings suitable for workshop use are also exhibited. The exhibition should do much towards helping the electrical industry in workshop practice. Power is obtained for all the motors driving the various machinery shown from the local borough supply, and no independent steam units are employed, their place being taken by single-phase motor generators supplied direct at 2200 volts, converting to 220 volts continuous current.

WE learn from the Allahabad *Pioneer Mail* of September 6 that the programmes of work of the various scientific departments for the current year, as settled by the Board of Scientific Advice, have been published. The following points are of general interest:—(1) schemes have been completed for the establishment of a central research station and agricultural colleges at Poona, Lyallpur, Cawnpor, Bhagalpur, Coimbatore, Nagpur, and Mandalay, and a staff of three European specialists has been sanctioned for each; (2) new agricultural stations are to be started (*a*) at Aligarh for the improvement of cotton, (*b*) at Partabgarh for the study of rice and sugar-cane, (*c*) at Jullundur, (*d*) at Bassein, and (*e*) at Bhagalpur and Bankipur (Bengal). The special investigations connected with the improvement of Indian cottons and wheats will be continued, but the scheme for the improvement of Indian tobacco will largely remain in abeyance until the appointment of a specialist for this purpose. The study of sugar-cane diseases and of practical measures for the suppression of cotton boll-worm in the Punjab will also be continued. The lead mines of the southern Shan States, the tin deposits in Mergui, Tavoy and Karenni, the oil beds in the Irrawaddy valley and the Arakan districts, the volcano of Popa in the Myingyan district, Burma, the copper beds of Singhbhum, and the manganese mines in the Central Provinces, are all to be the subject of geological investigation.

DR. A. GRAHAM BELL has erected on his estate at Benin Breagh, N.S., a tower, 80 feet in height, built of the tetrahedral cells which he invented to secure great strength and lightness in the construction of kites. The engineer was Mr. F. W. Baldwin, of Toronto, who stated at the opening ceremony that the tower weighs less than five tons, and will carry a weight of 50,000 lb.

FROM the report for last year we learn that the collections in the Albany Museum, Cape Colony, are making exceptionally rapid progress, the number of specimens received in the zoological department being in excess of that in any previous year. It is likewise stated that the value of the institution as a means of education is also steadily increasing.

WE have received a copy of a report on trials of the South African locust-fungus in India, by Messrs. E. J. Butler and H. M. Lefroy, issued by the Agricultural Research Institute, Pusa (Bulletin No. 5 of 1897), and published at the Government Press, Calcutta. Unfortunately, little or no success has attended the attempt, the effects of the fungus on several species of locust being *nil*, while in the case of the migratory locust of the north-west such effects as were produced appear to be of no practical value. As regards the last-mentioned species, the authors observe that "the conditions of nature are much more in favour of the insect, and against the fungus, than those under which the experiments were made, and if we can only anticipate a small percentage of infections the method will certainly fail."

THE trophy shown in the accompanying illustration is offered by the *Scientific American* for competition for heavier-than-air flying machines. In order that the competition might be held under the auspices of experts, the trophy has been given under a deed of gift to the Aëro Club of America, to be competed for annually by both American and foreign inventors. The first competition was announced to be held at the Jamestown Exposition on September 14 for a flight of 1 kilometre in a straight line, but the result has not yet reached us. The competition is to be progressive in character, that is to say, if the flight of the predetermined distance has been accomplished this year, next year a longer flight will be required. After every competition the name of the winner will be inscribed on the trophy. If it is won three times in different

The *Scientific American* flying machine trophy.

years by any competitor, the trophy will become his personal property. This fine example of the silversmith's art is of real beauty. From a green onyx base with a silver cartouche rises the massive silver trophy, measuring 32 inches over all. At the summit, projected away from the earth, is an aëroplane in high relief, standing away from the silver globe, with its frame held together by silver guy ropes. The trophy is valued at 500*l*.

THE life-history of a trypanosome infesting the alimentary canal of a leech (*Pontobdella muricata*) parasitic on skates and more rarely angler-fish is discussed by Miss M. Robertson in the Proceedings of the Royal Physical Society of Edinburgh, 1907, part iii. Possibly, despite a marked disparity in point of size and appearance, this trypanosome may be the earlier stage of *Trypanosoma raiae*, but this has still to be confirmed. After describing in detail (with a number of coloured illustrations) all that is at present known concerning the development of the trypanosome in the leech's intestine, the author proceeds to discuss its methods of division, which exhibit considerable diversity. Some of such divided individuals suggested the conjugation of a male and female element (gamete), but further examination negatived this interpretation, and showed that division is the sole factor in the phenomenon. This suggests caution in regard to other alleged instances of conjugation among Protozoa, although theoretical considerations render it probable that such a process really occurs at some stage of development.

IN connection with the preceding paragraph, reference may be made to a paper by Miss H. D. King, in the June issue of the Proceedings of the Academy of Philadelphia, on a new sporozoan parasite (*Bertramia bufonis*) found in "Bidder's organ"—a rounded body at the fore-end of the testis—of the common American toad. The interest of the discovery lies in the fact that hitherto scarcely any sporozoans have been recorded in amphibians; but, as the author observes, these creatures are probably as much subject to parasitic infestation as other vertebrates, and they may accordingly be expected to yield many new forms if thoroughly examined.

FROM an article on the history of the tomato, contributed by Mr. W. Dürkop to *Naturwissenschaftliche Wochenschrift* (September 1), it appears that the plant was introduced into Europe, probably into Spain or Portugal, from Peru shortly before the year 1560, and was first cultivated for its ornamental appearance. Fruits of different colours and shapes were grown in the sixteenth century, but the cultivation declined until the last century, when the fruit came into favour as an esculent.

MR. T. H. GATES has published in the *Botanical Gazette* (February and July) two interesting papers dealing with the cytology of *Oenothera Lamarckiana* and the mutant *Oenothera lata* raised by de Vries. The author investigated the development of the anther in *Oenothera lata*, but was unable to discover why the pollen fails to mature, although it appears to be connected with the early disintegration of the tapetal cells. The pollen of *Oenothera Lamarckiana* was used for raising a hybrid in which the sporophyte stage showed twenty or twenty-one chromosomes, thus differing remarkably from the parents, which both contain only fourteen chromosomes in this stage.

THE July number of the *Indian Forester* opens with a brief appreciative notice, contributed by Mr. S. Eardley-Wilmot, referring to the work of the late Sir Dietrich Brandis, the founder of the Indian Forest Department, and friend of many senior officers in the service. A record of the flowering of the bamboo *Cephalostachyum pergracile* in Lower Burma is reported by Mr. E. V. Ellis. The flowering, although not quite complete, was observed over several hundred acres, and the plants were of two different ages, but neither mature. Gregarious flowering over a few acres had been noted previously. Mr. A. M. Burn-Murdoch communicates a note on damar collection in the Federated Malay States, and Mr. M. Hill provides an account of the introduction of the mahogany tree, *Swietenia mahagoni*, into India.

THE first translator into modern Persian of Morier's famous novel, "Haji Baba," was Haji Shaikh Ahmad-i-Kirmani, a member of the so-called "heretical" sect of the Babis. He retired from Persia to Constantinople in order to continue his studies, and when the Sultan became alarmed at the assassination of the late Shah, Nasr-ud-din, the Turkish authorities basely surrendered the Babi to his hereditary enemies, by whom he was slain at Tabriz. When his version of "Haji Baba" reached Ispahan, it was welcomed with enthusiasm by the Persians as the first great novel written in their language; but when they became acquainted with the English original it ceased to be popular, and was regarded as a satire on all grades of Persians from the Shah downwards. This translation has now been reprinted in Calcutta by Lieut.-Colonel Phillott, Secretary to the Board of Examiners, who has added a brief grammar of modern Persian and a body of valuable notes explaining, not only the slang and popular expressions which abound in the book, but many usages, superstitions, and beliefs of the people. In its present form the book is certain to become popular among all who desire to learn, not so much the classical language, as that now spoken in Persia.

AN exhaustive monograph on the asbestos and manganese ore deposits of Ilocos Norte, by Mr. Warren D. Smith, is published in the *Philippine Journal of Science* (vol. xi., No. 3). The deposits occur in the northern portion of the island of Luzon, and are of considerable extent. The region is of special interest from the varied character of the geology. More diverse features are exhibited than in most parts of the archipelago. The region is primarily one of metamorphism, and this metamorphism is regional rather than local.

AN interesting note by Prof. Omori on the tilting of the ground during a storm appears in the August Bulletin of the Japanese Imperial Earthquake Investigation Committee. On October 10 and 11, 1904, a cyclone, the centre of which passed over the sea to the east of Tokio, was accompanied by a tilting of about $3\frac{1}{2}''$ towards the area of low pressure. On January 10 and 11, 1906, the track of a cyclone centre passed over and, close to Tokio, from south-west to north-east, and was accompanied by a tilting, first to the east and afterwards, as the low pressure passed eastwards, to the westward, the total change of inclination being about $2''.87$. In the latter case the ground rose under the area of low pressure, in the former it sank. The difference is attributed to the fact, recorded in a previous paper, and noticed in NATURE of November 3, 1904, that the sea-level commonly rises by more than the amount necessary to compensate for the diminution of barometric pressure, so that the resulting pressure on the sea bottom is actually greater with a low than with a high barometer. This number of the Bulletin also contains, among other papers, a note on the long-distance records of the Turkestan earthquake of August 22, 1902, in which we notice that the word "mean" seems to

have a peculiar significance in Japan, as the mean value is tabulated of a group of two observations, one of which is excepted!

THE engineering experiment station of the University of Illinois has published a Bulletin (No. 13), by Dr. N. Clifford Ricker, professor of architecture, describing an extension of the Dewey decimal system of classification applied to architecture and building. The decimal classification has been largely adopted in libraries in Europe and America, and the proposed extension should prove useful to architects and engineers for classifying collections of lantern-slides and photographs, and for a card index to technical periodicals.

THE Director-General of Indian Observatories has issued a memorandum, dated August 8, with reference to the probable monsoon rainfall during August and September, 1907, based on data obtained since the publication of the previous memorandum of June 8. Among the chief factors taken into consideration were the excess of pressure in South America in July, while in the Indian Ocean the deficiency still persisted. It has previously been pointed out that these conditions are favourable to Indian rainfall, and Dr. Walker thinks it likely that the total amount during August and September will reach or exceed the average.

SEPTEMBER has so far proved exceptionally fine over the entire country, and the whole period since the 5th or 6th of the month has been almost entirely rainless. At Greenwich rain fell on each of the first five days, the aggregate measurement being 0·44 inch, but no rain has fallen subsequently, the dry weather continuing practically for three weeks. At Yarmouth the rainfall to September 25 was 0·23 inch, whilst the average for the month is 2·41 inches, and at both Clacton-on-Sea and at Dover the rainfall amounts to 0·27 inch. The rain has been heavier and more frequent in the north, and at Sumburgh Head there have only been three days without rain, the total measurement to September 24 being 2·64 inches, which is only 0·68 inch short of the average for the whole month. Much mist or fog has prevailed during the past week in many parts of the country, and radiation frost has occurred at night. At Greenwich the exposed thermometer on the grass fell to 24°·7 on the morning of September 23, and there have already been four frosts in the open, as shown by the exposed thermometer, since the commencement of the month. A change in the type of weather is in progress, and the steadily falling barometer foreshadows the setting in of unsettled conditions.

IN accordance with the decision of the International Union for Cooperation in Solar Research that a re-determination of the wave-lengths of certain standard lines should be carried out by independent observers by the interference method of Drs. Fabry and Perot, Mr. A. H. Pfund, of Johns Hopkins University, has, according to a note in the *Physical Review* for August, recently measured the iron lines, and has obtained values which differ from those of Fabry and Perot by less than one part in a million. Mr. Pfund is now engaged in measuring the wave-lengths of the titanium lines.

THE *Zeitschrift für Instrumentenkunde* for August contains a short account, by Dr. von Rohr, of the life and work of the late Dr. S. Czapski, of Jena, so well known for his masterly article on Abbe's theory of optical instruments in Winkelmann's "Handbuch der Physik." He was born in 1861, and after a university education became Abbe's private assistant in 1885. He possessed a wonderful power of grasping the essential points of anything new brought to his notice, and Abbe found in him a friend to whom he ultimately entrusted the publication of his theories.

TWO papers from the pen of Dr. L. A. Bauer which have appeared recently serve to remind us of the prominent position which the United States is taking in the extension of our knowledge of the magnetic state of the earth. The first, in the *Technology Quarterly* for June, summarises the recent results obtained from a detailed survey of the United States and from the voyages of the survey ship *Galilee* across the Pacific. The second is the official report of the department of research in terrestrial magnetism of the Carnegie Institution of Washington, and deals with the voyages of the *Galilee* from October, 1905, to October, 1906, in greater detail. From the latter we gather that the charts of the Pacific at present in use give variations of the compass less than the true value by 1° or 2°, a very serious defect from the navigator's point of view.

SOME curious observations made a few years ago by Dr. A. Heydweiller as to the electrification of the human body by the bending or stretching of the knee or elbow joint receive their explanation in a paper by Drs. S. Tereschin and A. Georgiewsky in the *Physikalische Zeitschrift* for September 1. According to the latter, the electrification produced is due entirely to friction of the foot of the person experimented on on the insulating stand on which he is placed, or, if he is clothed, to the friction between body and underclothing or between under and overclothing. For the electric charges produced in these circumstances the human body is comparatively a good conductor.

IN the *Revue scientifique* for August 31, Dr. C. Féry gives a short illustrated account of the new methods of determining high temperatures in industrial operations. For temperatures up to 700° C. he recommends a thermo-electric couple of iron-constantan, from that to 1300° C. one of platinum and its alloys, in each case in combination with a self-registering arrangement. Where the thermo-couple would be injured if brought into direct contact with the source of heat, he advocates the use of his own pyrometer, in which the radiation from the source is concentrated by a concave mirror on to the thermo-junction. For sources of small dimensions at temperatures above 900° C., optical pyrometers, *e.g.* Wanner's, are the most useful.

THE question of the improvement of the "small power load," to which electric supply companies and borough electricity committees are perforce paying more attention at the present time than heretofore, is raised in an article by Mr. H. S. Hatfield in the *Electrician* of September 13. The difficulties obtaining on the development of the small power load, and the inability of the private lighting consumer to avail himself of the offer of cheap power, have been up to the present very great, owing to the fact that the supply must be separately metered, and it is necessary either to instal duplicate wiring or to use submeters. The cost of a separate service generally bars the use of heating and power appliances by the small consumer. The submeter system is free from the objection of first cost to a great extent, and the meters may be removed and used elsewhere, but so far this system has not been adopted to any extent. The objections to the submeter system have been that, although the capital expended on meters would not be irrecoverable, still the cost of four or five

trustworthy meters would be considerable; also the average electricity meter is very unsightly. A new submeter which overcomes a great many of the objections of the existing meters is, however, now obtainable, and should help largely towards the development of the small power load. The meter is of the mercury-electrolytic type, and has been proved to be very accurate; it fits over the ordinary two-pin wall plug. It is an inexpensive matter to fix this meter in several rooms wherever a consumer may wish to employ a heating appliance, and he is able to read the meter without trouble and know exactly what his radiator or kettle—as the case may be—is costing him.

UNDER the title "Probleme der katalytischen Forschung" (Leipzig: Veit and Co., price 1.20 marks) Dr. Gertrud Woker has published in pamphlet form an inaugural address delivered at the University of Bern. A suggestive review is given of such questions as the nature of the catalytic changes occurring in the oxidation of sulphur dioxide by nitrous fumes in the chamber process of making sulphuric acid, the problems of autoxidation, the action of the so-called oxydases within the organism, and the nature of the transformations brought about by enzymes in general; finally, the relationship between toxins and anti-toxins is discussed as a phenomenon of physical chemistry governed by the law of mass action.

THE first meeting of the new session of the Entomological Society of London will be held on Wednesday next, October 2, when a paper will be read on the butterflies of Mauritius and Bourbon by Lieut.-Colonel N. Manders.

WE have received from Messrs. F. Darton and Co. their illustrated price list of standard meteorological and other instruments. Some useful notes are given for the benefit of students and others, together with a list of text-books recommended; the latter might be revised with advantage. Before establishing new stations, observers would do well to consult recognised meteorological authorities, especially as regards the installation and proper exposure of the instruments.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN OCTOBER:—

Oct. 1. 18h. Jupiter in conjunction with the Moon. (Jupiter 1° 11′ S.).
2. 12h. 58m. Minimum of Algol (β Persei).
4. Saturn apparently without rings.
5. 9h. 47m. Minimum of Algol (β Persei).
8. 6h. 36m. Minimum of Algol (β Persei).
14. 17h. Mars in conjunction with the Moon. (Mars 1° 47′ S.).
18. 6h. Saturn in conjunction with the Moon. (Saturn 2° 13′ N.).
18–22. Epoch of October meteors. (Radiant 92°+15°.)
22. 22h. Mercury at greatest elongation, 24° 20′ E.
26. 19h. Venus in conjunction with α Libræ. (Star 0° 5′ S.).
28. 8h. 18m. Minimum of Algol (β Persei).
29. 9h. Jupiter in conjunction with the moon. (Jupiter 1° 41′ S.).

SPECTRUM OF DANIEL'S COMET (1907*d*).—Photographs of the spectrum of comet 1907*d*, taken with a Zeiss prismatic camera, were obtained by Herr H. Rosenberg at the Göttingen Observatory on August 9, 11, and 14, with exposures of twenty-five, twenty-eight, and eighteen minutes respectively. The results of the measurements of the spectrograms are uncertain to about ±10 Ångström units, but certainly show that the spectrum includes the chief hydrocarbon and cyanogen bands, with a continuous spectrum extending from about 505 μμ to 370 μμ. The brightest bands are those coinciding with the two heads of the third cyanogen band at λλ 3883 and 3872 respectively; the third strongest band of the seven measured coincides with the fourth carbon band at λ 4737. Two bands at λλ 4055 and 4035 are as yet unidentified. The photograph of August 9 showed bands at 473, 438, 423, 404, and 388 μμ in the spectrum of the comet's tail, all of which were apparently of equal length and strength.

A continuation of the ephemeris of this comet, computed by Herr J. Franz from Dybeck's elements, appears in the same journal (*Astronomische Nachrichten*, No. 4200, p. 401, September 12); the following is abstracted therefrom:—

Ephemeris 12*h*. (*M.T. Berlin*).

1907	α (true) h. m.	δ (true) ° ′	log *r*	log Δ	Brightness
Sept. 25	11 4·8	+5 47·1	9·8550	0·2085	4·89
29	11 21·9	+4 32·1			
Oct. 3	11 37·7	+3 20·7	9·9264	0·2453	3·00

THE LOWELL EXPEDITION TO THE ANDES.—A second communication from Prof. David Todd to Dr. W. J. S. Lockyer gives additional information concerning the work of the Lowell expedition, of which Prof. Todd is in charge. It appears that at the chief station of the expedition, Alianza, more than 7000 photographs of Mars were obtained during the period June 17 to August 1. Prof. Lowell's discussion of these will form a most important addition to areography, as they show, covering a complete round of the planet, the changing appearances of the two polar caps, a multitude of "oases," and hundreds of the "canals," many of which are plainly in the geminate form.

The photographed images of the planet, as enlarged by the Gaertner camera, are of about three-sixteenths of an inch diameter, and will admit of much further enlargement. Exposures of about two seconds were given on Seed and Cramer plates.

SEPTEMBER METEORS.—The appearance of several bright meteors during the present month is reported from various quarters, but no details of the paths are given. One very fine one was seen at South Kensington by Mr. H. E. Goodson at 11h. 20m. on September 9. The meteor itself disappeared behind a house-top, but left a splendid trail which persisted for fully one-quarter of a minute. Judging from this trail, the direction of the meteor's flight was along a line from β Ursæ Minoris, passing half-way between θ and *i* Draconis. The meteor was very brilliant and swift, and was followed almost immediately by a less bright one, which pursued nearly the same path.

PHOTOGRAPHS OF PHŒBE.—Using the 30-inch reflector of the Greenwich Observatory, Mr. Melotte has obtained a series of photographs of Phœbe, Saturn's ninth satellite. The results derived from provisional measurements of the plates show that Dr. Ross's ephemeris, published in the second edition of the American Ephemeris for 1907, is essentially correct (the *Observatory*, No. 387, p. 366, September).

SOLAR ACTIVITY AND TERRESTRIAL PHENOMENA.—We have received from MM. Cirera and Balcells, of the Tortosa Observatory, Spain, a discussion of the relations observed to exist between the variations of solar activity and of terrestrial magnetism and electricity during the first three months of this year.

From this discussion the observers arrive at the following conclusions:—(1) the solar activity increased in January, passed a maximum in February, and decreased during March; (2) the regions of activity exhibited motions in the opposite direction to the sun's rotation; (3) the variations of activity often commenced in the chromosphere. Regarding the correlation of these variations with magnetic and electrical perturbations, the following conclusions were arrived at:—the perturbations either coincided with the appearance of a region of activity on the eastern limb of the sun, with the passage of such a region over the sun's central meridian, or with an extraordinary increase of activity near to the central meridian.

On March 22 an observed strong perturbation coincided, in time, with the central-meridian passage of a region which had been active during the previous rotation of the sun, and on certain dates in January and February the